REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-12 are presently active in this application. Claims 1-5 and 7-12 are rejected under 35 U.S.C. § 102(e) over U.S. 2005/0030674 (Carey et al.) and claim 6 is rejected under 35 U.S.C. § 103(a) over Carey et al. and further in view of U.S. 6,707,084 (Katti et al.).

The present invention as recited in the pending claims is directed to a spin-tunnel transistor and a magnetic head having a spin-tunnel transistor. The transistor has an emitter, a collector formed adjacent to the emitter, and a base formed between the emitter and the collector and having a magnetization pinned layer, a magnetization free layer and a non-magnetic layer between the magnetization pinned layer and the magnetization free layer. The base includes an electrode configured to apply a voltage between the emitter and the base. Support for the recited electrode is found, for example, by the non-limiting disclosure on page 8, lines 8-10 and page 10, lines 6-7. The electrode included in the base provides for hot electron injection from the emitter into the base.

Carey et al. discloses a structure in Figure 3A having a magnetization-free layer 105, a conductive layer 104, a pinned layer 103 and a coercive ferrite pinning layer 132. Formed on layer 132 are an oxide underlayer 134 and an alumina underlayer 135. The structure shown in Figure 3A of Carey et al. makes no mention of an emitter or a collector. Layers 136 and 138 are shields and are not described as an emitter or a collector. The Office Action simply states that layers 136 and 138 are an emitter and collector. Simply stating so is insufficient. There must be something in Carey et al. explaining that layers 136 and 138 are an emitter and collector in order to properly reject the claims under §102. Leads 112 formed on the sides of the structure are provided to produce a sensing current, where the sense current is measured to detect the varying device resistance induced by the external magnetic

field, as stated in paragraph [0006]. There is no mention of any electrode configured to apply a voltage between layers 103/104/105 and an emitter. Carey et al. does not disclose a structure with a base including an electrode configured to apply a voltage between the base and emitter.

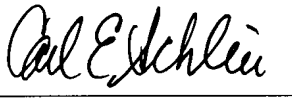
It is respectfully requested that the 35 U.S.C. § 102 rejection over Carey et al. be withdrawn.

The Office Action looks to Katti et al. for a spin valve, as shown in Figure 4, having an antiferromagnetic (AFM) layer 414. Even if such teachings were applied to Carey et al., the structure would still fail to disclose or suggest the transistor recited in claims 1, 7 and 10. The combined structure would still lack the base including an electrode as recited in claims 1, 7 and 10. It is respectfully submitted that claims 1, 7 and 10 are also patentably distinguishable over a combination of Carey et al. and Katti et al.

It is respectfully submitted that the present application is in condition for allowance, and a favorable action to that effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Eckhard H. Kuesters
Registration No. 28,870

Carl E. Schlier
Registration No. 34,426

Attorneys of Record

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)